

Exploring Computer Science

The World Wide Web

A decorative graphic on the right side of the slide. It features a large, stylized orange shape that tapers from left to right, resembling a funnel or a wide arrow. The shape is filled with a gradient of orange and yellow. Overlaid on this shape are several elements: a horizontal band of binary code (0s and 1s) in white and orange; a large, semi-transparent grey circle; and a vertical stack of four smaller, semi-transparent grey circles on the right side. The background of the slide is white with a light orange gradient at the bottom.

01001010100111101000010010111010010 110101010111010000100101001001
001000010100101001001010000101101001010100001111010010101001110100001001011010010
1101010101011101000010000101001001001000010110100101010000111101001010

How do computers share information and resources, like printers & webcams?

- In our School?
- Within the school district (like grade information sent to the district office)?
- With the World Wide Web?

<http://www.cleanvideosearch.com/media/action/yt/watch?videoId=TVvEheZVwdg>

Networks:

- **LAN - Local Area Network** - network typically within a building physically connected
- **MAN - Metropolitan Area Network** - network less than 30 miles, connects several buildings
- **WAN - Wide Area Network** - networks that span more than 30 miles can be between countries.

Other key words:

- **Node** - anything connected on the network: computer, printer, server
- **Communications Media** - ways information is transmitted like Ethernet Cables, fiber optics, and Wifi - broadcast waves to connect

So what is the Internet and how does it work?

- But first, let's see **what we know about the Internet with a Quiz?** We will take it together

<http://computer.howstuffworks.com/internet/basics/fact-or-fiction-internet-quiz.htm>

How Internet works in 5 minutes:

http://www.cleanvideosearch.com/media/action/yt/watch?videoid=7_LPdttKXPc

World Wide Web in Plain English:

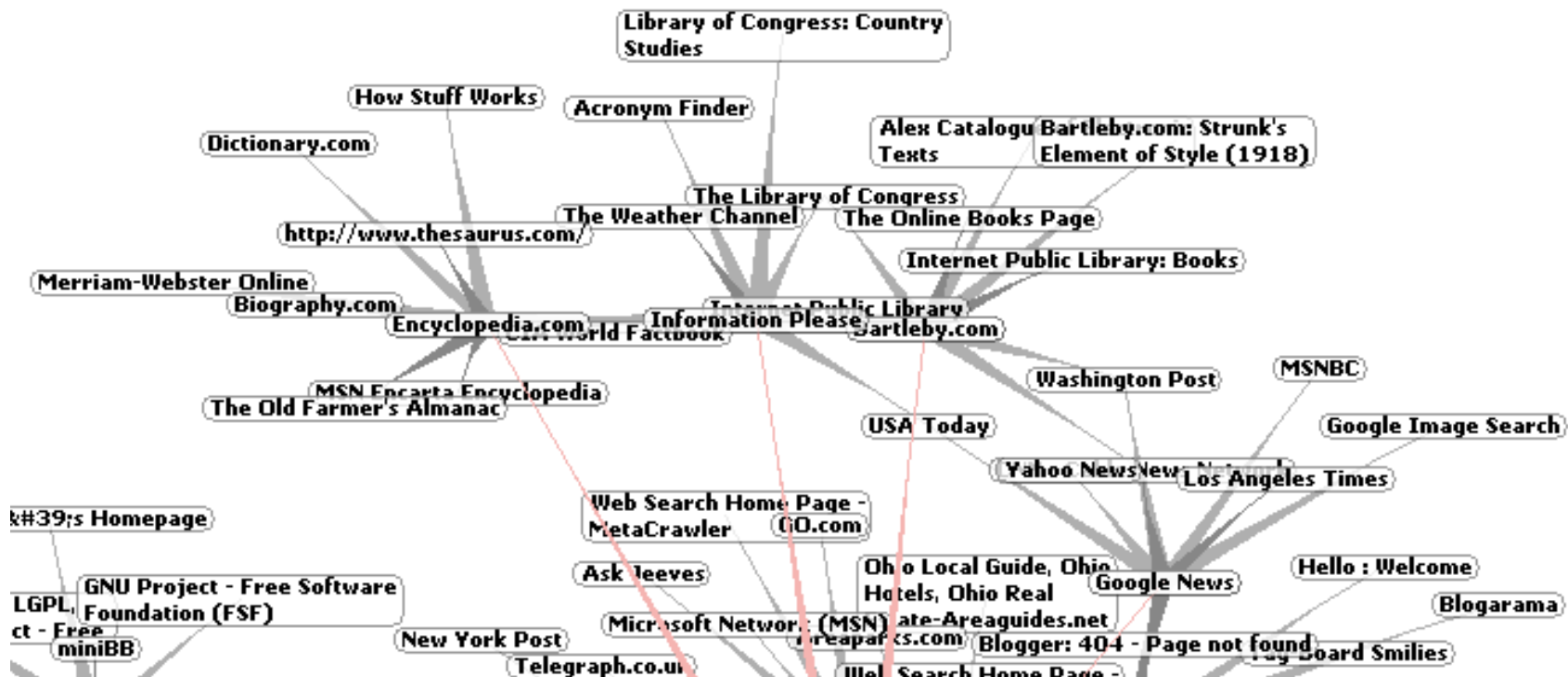
<http://www.cleanvideosearch.com/media/action/yt/watch?videoid=wZoMbBzqxyc>

The Internet & the World Wide Web

- The Internet is a Network of Networks that allows information to flow throughout the world. It grew out of the ARPANET (Advanced Research Project Agency) network, which was launched in 1969 (same year we first landed on the Moon).
- The World Wide Web is the system used over the Internet that uses HTML and other protocols to exchange the variety of information on the web. We will be learning more about HTML later.

The world wide web

- Wikipedia: "system of interlinked hypertext documents accessed via the Internet"
- Hides away a LOT of detail



How home computers gets a page from the Web:

- **A home Computer** as a Client node typically connects to a ...
- **DSL box** (Digital Subscriber Line) and using Cable, Phone line, or Satellite Dish communicates with the...
- **ISP** - Internet Service Provider that has a direct line to the Internet where...
- **Routers** direct packets of information to the appropriate...
- **Server** which stores and then "serves up" the webpages & websites. Each Server has an IP Address (Internet Protocol, like 123.456.789.012.345) that maps to its URL (Uniform Resource Locator, like. www.garfieldcs.com) (try <http://www.whatismyip.com>)
- Then the Server sends back the HTML (Hyper Text Meta Language) for the webpage and other information back through the Router, ISP, DSL box to your computer and so on.

Data Packets & the Router

- **Data Packets:** Data is sent over the web in small Packets, manageable pieces that are sent out and then reassembled at the destination. Think of it like sending a long letter using only a bunch of numbered post cards. They may arrive at different times but once they all arrive the reader can assembled them in order and read as the whole message.
- **Router:** A Router sorts out the packets of information communicated to and from the Internet and sends them to the correct destination node, typically a client or server.
- More details on how the Internet works is at:
<http://www.howstuffworks.com/internet/basics/internet.htm>



Unit 2: the world wide web

- By the end of the unit you should be able to:
 - explain what the Internet and WWW are
 - compare common web browsers
 - create web pages using HTML
 - understand inherent privacy issues
 - describe how computers are networked
 - use several web2.0 applications like Glogster



What do you use the web for?

What are all the ways you use the Internet & World Wide Web? (write in your Composition book)

- 1) List all you can think of: how you use it personally as well as to get your school work done.
- 2) Which of these uses could be helpful in a future job?
- 3) What else would you like to do on the web, especially that might be helpful in future career?



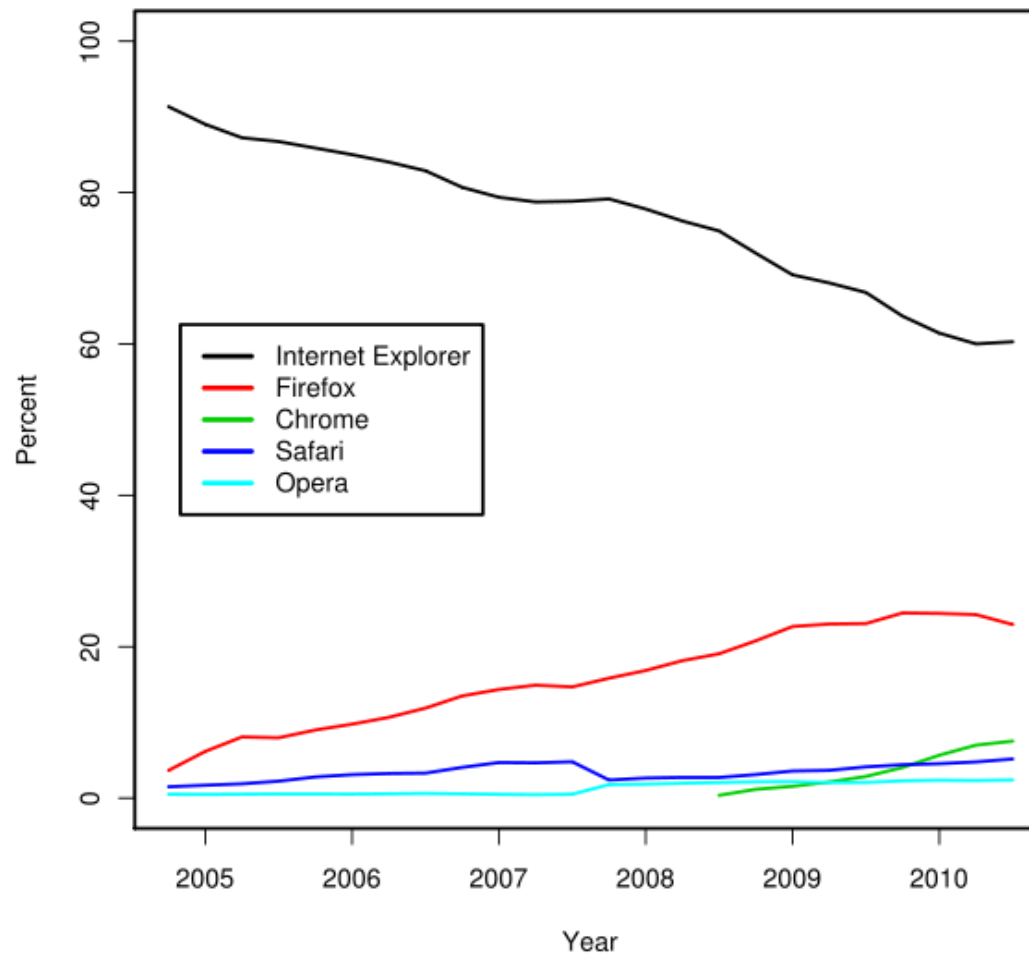
**How has the web changed
society?**

Browsers

- Allow us to access web content
 - web pages
 - files of various kinds (MP3, PDF, etc)
 - web applications
- Which browser do you use?
 - Internet Explorer
 - Firefox
 - Chrome
 - Safari
 - Opera

Browsers

Usage share of web browsers



Source: Net Applications